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					U.S. PATENT DOCUMENTS		
		Cite No. 1	U.S. Patent Document Number Kind Code (if known)		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
4	M	AA	3,817,982	T	Verheyden et al.	06-18-1974	
		AB	4,900,828		Belica et al.	02-13-1990	
		AC	4,904,770		Starrett, Jr. et al.	02-27-1990	
		AD	5,130,421		Starrett, Jr. et al.	07-14-1992	· · · · · · · · · · · · · · · · · · ·
		AE	5,455,339		Chu	10-03-1995	
		AF	5,539,099		Skonezny et al.	07-23-1996	
	·	AG	5,561,120		Lin et al.	10-01-1996	
		AH	5,703,058		Schinazi et al.	12-30-1997	
		ΑI	5,905,070		Schinazi et al.	05-18-1999	
1	U^-	AJ	6,232,300		Schinazi et al.	05-15-2001	

	FOREIGN PATENT DOCUMENTS									
Exa Initi	miner als *	Cite No. ¹	Office	Foreign Patent Do Number	Kind Code 2 (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document DD-MM-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶	
C	100	AK	wo	99/43691	Al	Schinazi et al.	02-09-1999	1		
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\Box		AM	EP	0 409 227	A2	Matthes et al.	19-07-1990			

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		OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS	
Examiner Initials *	Cite No. 1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T 6
1	BA	ABDEL-MEDIED, A. WS., et al., Synthesis, 1991, 313.	
	BB	CHEN S., et al. "Synthesis and Biological Evaluation of a Series of 2'-Fluorinated-	
		2',3'-Didehydro-(L)-Nucleosides." Biorganic & Medicinal Chemistry Letters.	
		8:3245-3250, 1998.	
	BC	CHEN, S., et al. "Stereoselective Syntheses of β-L-FD4C and β-L-FddC." J. Org.	
		Chem. 62(11):3449-3452, 1997.	
	BD	CHENG, Y., et al., J. Med. Chem. 1996, 62, 1757-1759.	
	BE	HORWITZ, J. P., et al. "Nucleosides. IX. The Formation of 2',3'-Unsaturated	
		Pyrimidine Nucleosides via a Novel β-Elimination Reaction." J. Org. Chem. 31:205-	
		211, January 1966.	
	BF	HORWITZ, J. P., et al. "Nucleosides. VI. The Introduction of Unsaturation into the	
		Carbohydrate of a Pyrimidine Nucleoside via a 2,3'-Anhydro Bond." J. Am. Chem.	
		Soc. 86:1896-1897, May 5, 1964.	
	BG	HORWITZ, J. P., et al. "Nucleosides. XI. 2',3'-Dideoxycytidine." J. Org. Chem.	
		32:817-818, March 1967.	
	BH	JAIN, T.C., et al. "Reactions of 2-Acyloxyisobutyryl Halides with Nucleosides. IV.	
		A Facile Synthesis of 2',3'-Unsaturated Nucleosides Using Chromous Acetate." J.	
		Org. Chem. 39(1):30-38, 1974.	
	BI	MANCHAND et al. "Syntheses of the Anti-AIDS Drug 2',3'-Dideoxycytidine from	
		Cytidine." J. Org. Chem. 57(12):3473-3478, 1992.	
	BJ	MORIKAWA, T., et al., Chem. Pharm. Bull., 1992, 40, 3189	
	BK	PATRICK, T.B., et al. "New Fluorobutenolide Templates for Synthesis." J. Org.	
		Chem. 59(5):1210-1212, 1994.	
	BL	ROBINS, M. J., et al., Tetrahedron Letters 1984, 25, 367.	
$ IV_{-} $	BM	RUSSELL, A. F., et al., J. Am. Chem. Soc. 1973, 95, 4025.	

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Examiner Signature	DANG CIMILX	Date Considered	5/07
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gu	CA	SHI, et al. "Synthesis and Biological Evaluation of 2',3'-Didehydro-2',3'-dideoxy-5-fluorocytidine (D4FC) Analogues: Discovery of Carbocyclic Nucleoside Triphosphates with Potent Inhibitory Activity against HIV-1 Reverse Transcriptase." J. Med. Chem. 42:859-867, 1999.	
	СВ	SUJINO, K., et al. "Facile Synthesis of 2',3'-Unsaturated Nucleosides from 2- Deoxyribose." Tetrahedron Letters. 37(34):6133-6136, 1996	
	CC	Synthesis of α,β-Unsaturated Esters." J. Org. Chem. 55(15):4639-4612, 1990.	
1	CD	VERHEYDEN, J.P., et al. "2',3'-Unsaturated nucleosides." Chem. Abstr. 81:508(63942), 1974.	

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Application Number 10/087,112

Filing Date March 1, 2002

First Named Inventor Jin, F et al.

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Sheet 1 of 1 Attorney Docket Number PHA2001US

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			U.S. PATENT DOCUMENTS		
Examiner Initials *	Cite No. 1	U.S. Patent Document Number Kind Code ² (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
*	AA	4,594,339	Lopez, C. et al.	06-10-1986	•
'	AB	4,847,366	Yamamoto, Y. et al.	07-11-1989	
	AC	5,212,298	Radamacher, T. W. et al.	05-18-1993	
a	AD	5,625,057	Shiragami, Hiroshi et al.	04-29-1997	
	.]				

	FOREIGN PATENT DOCUMENTS									
Examiner Initials *	Cite No. 1	Office 3	oreign Patent Do Number	Kind Code ² (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document DD-MM-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	Τ ⁶		
94	AE	EP	0 334 368		Bristol Myers Co.	27-19-1989				

:		OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS	
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gw	AF	COE, et al., Journal of Flourine Chemistry, Elsevier Sequoia, Lausanne, CH, vol. 69, no. 1, pp. 19-24, 1994.	
	AG	CLASSON, B. et al., ACTA Chem. Scand., Ser. B., B36(4), 251-3, 1982.	
	AH	MANSURI, M M et al., J. of Organic Chemistry, American Chemical Society, vol. 54, no. 20, 29 Sept. 1989, 1780-4785.	
	ΑI	OZAKI, S. et al., Bull. Chem. Soc. Jpn., 50(8), 2197-8, 1977.	
	AJ	OZAKI, S. et al., Nucleic Acids Symp. Ser., 9-1, 12, p. 11, table 1, 1983.	
	AK	WATANABE, K.A. et al., J. Med. Chem, 23(10), 1088-94, 1980.	
	AL	VAN AERSCHOT, A. et al., j. MED Chem, 33(6), 1833-9, 1990.	

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U.S. PATENT DOCUMENTS							
		U.S. Patent Document			Date of	Pages, Columns, Lines,	
	Cite No.	Number	Kind Code ² (if known)	Name of Patentee or Applicant of Cited Document	Publication of Cited Document MM-DD-YYYY	Where Relevant Passages/Relevant Figures Appear	
*	AA	4,987,224		Chu	01-22-1991		
42	AB	5,175,267		Chu	12-29-1992		
1/4	AC	5,200,514		Chu.	.04-06-1993		
17	AD	5,384,396		Chu et al.	01-24-1995		

				FORE	IGN PATENT DOCUMENTS			
Examiner Cite No. 1	Foreign Patent Document				Date of Publication	Pages, Columns, Lines, Where		
	Office 3	Number	Kind Code ² (if known)	Name of Patentee or Applicant of Cited Document	of Cited Document DD-MM-YYYY	Relevant Passages. or Relevant Figures Appear	T	
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